

ORIGINAL ARTICLE

MORBIDITY OF SURGERY IN PREVIOUSLY UNDIAGNOSED CIRRHOTIC PATIENTS

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Background: Undiagnosed cirrhotic patients are frequently encountered during routine and emergency surgery. These patients have a higher incidence of blood loss & wound infection, resulting in prolonged hospital stay. This study was conducted to highlight the possible complications which result in prolonged hospital stay in these patients. **Methods:** A total of 38 patients were incidentally found to have cirrhosis out of a total of 1560 patients who underwent abdominal operation. Diagnosis was confirmed on per-operative liver biopsy and was suspected preoperatively in patient having abnormal liver function test. Per-operative bleeding, postoperative wound infection and hospital stay was compared in cirrhotic and non-cirrhotic patients. **Results:** The mean blood loss was 310 ml in cirrhotic patients as compared to 205 ml in non-cirrhotic patients which was statistically significant (p -value 0.008). Post-operative infection rate was 21% in cirrhotic patients compared to non-cirrhotic patients 5%. Significance was tested using Pearson Chi square test (0.042). The Average hospital stay was 10 days in cirrhotic patients and 7.5 days in non-cirrhotic patients respectively which was statistically significant (p -value 0.006). **Conclusion:** There is statistically significant difference in per-operative bleeding, wound infection and hospital stay in cirrhotic and non-cirrhotic patients.

Keywords: Cirrhosis, morbidity, surgery

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INTRODUCTION

Cirrhosis of liver is a chronic process characterized by nodules in liver along with increase in fibrous tissue throughout liver. Patients with impaired liver functions requiring surgery, i.e., abdominal and hepatobiliary surgery represent challenging patients because they are at greater risk of both surgical and anaesthetic complications.¹

In Pakistan post necrotic cirrhosis is frequently and remains commonest cause of ascites in this country.² Although prevalence of major causes of chronic hepatic disease remained same as Hepatitis B, Hepatitis C and alcoholism, but now obesity related non-alcoholic fatty liver disease (NAFLD) and metabolic cirrhosis is also on rise.³ Mortality is more in cirrhotic patients, i.e., 9–19% in general surgical procedures.⁴ The incidence of cholelithiasis in patients with cirrhosis approaches two times as compared to non-cirrhotics.⁵

A number of studies reveal that surgery in cirrhosis is associated with high morbidity and mortality especially with decompensated liver disease. Even in patients with reserved liver function there can be operative mortality between 9–19%.⁴

It is suggested that operative mortality and morbidity be reduced by preoperative optimization of patients and post-operative care. In cirrhotic undergoing elective surgery, the mortality can be reduced by diet restriction, testing coagulation

profile, control of ascites and judicious use of antibiotics.

The aim of study was to assess the bleeding, infection rate and hospital stay in surgery in previously undiagnosed cirrhotic patients and to compare morbidity of surgery in cirrhotic and non-cirrhotic patients.

MATERIAL AND METHODS

This descriptive study was conducted by review of the records in Combined Military hospital, Quetta, which is one of the major tertiary care and teaching hospital in Balochistan and serves as major referral facility for the province for both military and civil population and drains patients from all over the province.

The vast majority of patients are self-referrals due to lack of organized primary care system. Our hospital uses international classification of disease, 9th Revision, Clinical modification (ICD-9-CM) for coding of medical records. All the hospital records are well maintained using Hospital management system (HMS). A computer generated list of patients who underwent abdominal surgical procedures during a period of two years from, i.e., from Jan 2013 to Dec 2014 was retrieved from HMS.

We found a total of 134 patients who had cirrhosis, and underwent surgery. Out of these, 38 patients had cirrhosis & remained undiagnosed till the time of surgery were included in study, those diagnosed pre operatively were excluded from the study. All except 18 were self-referral to our hospital. Only 10 patients had previous medical record available

which was relevant. These patients underwent abdominal surgery and were incidentally found to have cirrhosis. Diagnosis was confirmed on preoperative liver biopsy. The non-cirrhotic patients were also selected from HMS for comparison keeping in view their resemblance to their cirrhotic counter parts in age & the type of surgery.

Patients who were preoperatively known to have cirrhosis were excluded from study, as they were properly worked up for the surgery including arrangements for FFPs and platelet transfusion. In addition to the basic profile of patients past history of jaundice or any other liver disease, physical examination, Ultrasound examination, Laboratory parameters, i.e., Serum bilirubin, transaminases, albumin, alkaline phosphatase and prothrombin time, Blood complete picture and urine examination reports were retrieved from the records for both the groups. In 38 patients who were included in the cirrhotic group all these investigation were normal pre operatively or results were received after surgery because of emergency surgeries.

Both the groups were compared for post-operative bleeding, wound infection and hospital stay. Student t test for unpaired data was used for statistical analysis of operative blood loss and hospital stay. Whereas Pearson Chi square test was used to analyse wound infection in both groups.

RESULTS

Most of patients were between ages 36–45 years (30%). Twenty-one males belonged to this age group. Next commonest group was 46–55 years (27%) 15 male and 6 female patients belonged to this group. Eight patients were of age less than 25 whereas 2 male and 8 female patients were of age greater than 66.

Majority of patients suffered from chronic cholecystitis whereas 3 patients were diagnosed as having acute cholecystitis. One patient had obstructive jaundice due to choledocholithiasis. Four patients came with dynamic intestinal obstruction which required surgical intervention. Three of patients suffered from blunt abdominal trauma. Three patients had gastric outlet obstruction due to chronic duodenal ulcer. All 7 cases with intra-abdominal malignancies were cases of carcinoma colon. The operative procedure in these patients varied according to their condition as shown in table-1.

There was a significant difference in blood loss, wound infection & hospital stay between the two groups. The mean blood loss in cirrhotic patients was significantly higher, i.e., 310 ml as compared to 205 ml in non-cirrhotic patients which was statistically significant (p -value 0.008).

Cirrhotics had a higher infection rate, i.e., 21% in non-cirrhotic patients it was only 5%. Cirrhotic

patients had a longer hospital stay, i.e., 10 days, as opposed to 7.5 days in non-cirrhotic patients which was statistically significant (p value 0.006)

Table-1: Comparison of Basic profile of Cirrhosis and non-cirrhotics groups

	Cirrhosis (n=38)	Non Cirrhotics (n=38)
Age years (mean)	45.76	45.97
Sex M/F	12/26	12/26
Diagnosis at time of admission		
Chronic Cholecystitis	17 (44.7%)	17 (44.7%)
Acute Cholecystitis	3 (7.8%)	3 (7.8%)
Obstructive Jaundice	1 (2.6%)	1 (2.6%)
Blunt trauma abdomen	3 (7.8%)	3 (7.8%)
Intestinal obstruction	4 (10.5%)	4 (10.5%)
Gastric outlet obstruction	3 (7.8%)	3 (7.8%)
Intra-abdominal malignancies	7 (18.4%)	7 (18.4%)

Table-2: Comparison post-operative outcome of cirrhosis and non-cirrhotic groups

Post-operative outcome	Cirrhosis group	Non-cirrhotic group	p -value
Complications			
Per operative Blood loss(mean)	310 ml	205 ml	0.006
Wound sepsis	8 (21%)	2 (5.2%)	0.042
Hospital stay(mean)	10 days	7.5 days	0.008

DISCUSSION

Cirrhosis of liver has a major impact on morbidity after surgery. In a study carried out by Geode BD and his colleagues, it was demonstrated that postoperative morbidity and mortality was high in cirrhotic as compared to non-cirrhotic undergoing similar surgery. Inguinal hernia and cholecystectomy were associated with lowest mortality while pancreatic trauma and cardiovascular surgery were associated with highest mortality. Preoperatively we can predict the postoperative morbidity and mortality risk by using model for end stage liver disease (MELD) score and Child- Turcotte-Pugh (CTP) score. Surgery performed in emergency and associated portal hypertension were associated with high morbidity and mortality.^{6,7} Aranha *et al*⁸ reported a mortality of 83.3% in patients with decompensated liver disease compared with a figure of 1.1% in patients with normal liver. In this study all cirrhotics had well preserved liver function and there was no mortality but a significant morbidity.

In another study carried out by Nichole A *et al* demonstrated that patients with cirrhosis are at higher risk of postoperative bleeding and sepsis as demonstrated in our study, but he also demonstrated that these patients are at greater risk of encephalopathy and ascites. He also demonstrated the increased mortality with increase in CTP score and was 10% and 22% in CTP-A & C respectively.⁹

In another study conducted by McGillicuddy, Villar JJ *et al* from 2000 to 2011, they studied 63 patients undergoing laparoscopic cholecystectomy. Out

of 63 patients 32 were cirrhotic. Of the 32 patients 11 (34%) were Child A, 14 (44%) were Child B and 5 (16%) were Child C. Morbidity was 33% and mortality was 2%. Complication rate was high in Child C cirrhotics. They concluded that Laparoscopic cholecystectomy should be performed carefully in selected patients only with Child A & B and should not be done in Child C.¹⁰

In our study all cirrhotic patients had preserved liver function and there was no mortality but significant morbidity. This study differs from other studies in that, in our study patients were found to have cirrhosis only at operation and they were not previously diagnosed. In patients with mild liver failure (prothrombin time less than 2.5 sec prolonged), there was 9–10% mortality. The situation may be more favourable in cirrhotic patients without liver failure, although there was no mortality but significant morbidity.

It was observed that there was significant increase in preoperative blood loss. Blood loss was compared in two groups. Mean blood loss was found to be 310 ml in cirrhotic group as compared to 205 ml in control group.

Several factors contribute to bleeding e.g. increased vascularity of gallbladder bed, nodular liver, portal hypertension and coagulopathy.¹¹ Significant more bleeding was noted in cirrhotic group as compared to control group. It is interesting to know, however the amount of bleeding did not correlate with presence or absence of coagulopathy. Cirrhotic patients as a group tend to bleed more irrespective of their prothrombin time.¹²

Although there was no mortality in study, the cause of death in cirrhotic patients undergoing abdominal surgery is usually related to complication of liver disease for example haemorrhage, sepsis, encephalopathy and ascites.

In setting like ours, where chronic liver disease is prevalent, the diagnosis of cirrhosis may be made incidentally in patients presenting to hospital for other problems. Usually a limited preoperative workup is carried out before abdominal surgery.

CONCLUSION

Cirrhosis of liver is fairly common in Pakistan. Many patients are not aware of their problem because of lack of organized health system. Many of patients undergoing surgery are at greater risk of morbidity and mortality.

The incidence of previously undiagnosed

cirrhosis in patients undergoing abdominal operation was 2.4%. Cirrhotic patients as a group tend to bleed more. Incidence of wound sepsis was higher in cirrhotic as compared to non-cirrhotic patients.

It is recommended that in areas where liver disease is prevalent all patients undergoing surgery should have a preoperative prothrombin time, serum albumin levels, hepatitis B surface antigen (HBsAg) and Anti-HCV antibody checked. If any of these is found to be abnormal, suspicion of cirrhosis should be raised. A careful abdominal ultrasound with particular emphasis on liver should also be raised. Even if an unexpected cirrhotic patient is encountered at surgery, timely measures like, blood transfusion & antibiotics can lead to a favourable outcome.

AUTHOR'S CONTRIBUTION

RM: Conducted the study, AR: Manuscript writing, ZI: Patient follow up, MUA, TA: Data collection.

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